

REMARKS

I. Introduction

Claims 16 and 19-25 are pending in the present application. Claim 16 has been amended. In view of the foregoing amendments and the following remarks, it is respectfully submitted that all of the presently pending claims are allowable, and reconsideration is respectfully requested.

II. Rejection of Claims 16, 19 and 20 under 35 U.S.C. § 103(a)

Claims 16, 19 and 20 were rejected under 35 U.S.C. § 103(a) as unpatentable over Buchholz (U.S. Patent No. 5,244,154) in view of Pontoppidan (U.S. Patent No. 6,267,307).

In rejecting a claim under 35 U.S.C. § 103(a), the Examiner bears the initial burden of presenting a prima facie case of obviousness. In re Rijckaert, 9 F.3d 1531, 1532, 28 U.S.P.Q.2d 1955, 1956 (Fed. Cir. 1993). To establish prima facie obviousness, three criteria must be satisfied. First, there must be some suggestion or motivation to modify or combine reference teachings. In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). This teaching or suggestion to make the claimed combination must be found in the prior art and not based on the application disclosure. In re Vaeck, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). Second, there must be a reasonable expectation of success. In re Merck & Co., Inc., 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Third, the prior art reference(s) must teach or suggest all of the claim limitations. In re Royka, 490 F.2d 981, 180 U.S.P.Q. 580 (C.C.P.A. 1974). To the extent the Examiner may be relying on the doctrine of inherent disclosure in support of the obviousness rejection, the Examiner must provide a “basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristics necessarily flow from the teachings of the applied art.” (See M.P.E.P. § 2112; emphasis in original; see also Ex parte Levy, 17 U.S.P.Q.2d 1461, 1464 (Bd. Pat. App. & Inter. 1990)).

Amended claim 16 recites, in relevant parts, “a fixed valve seat element to cooperate with the valve-closure member . . . ; and a downstream valve end including an outlet component . . . , wherein: the fuel outlet includes at least one discharge orifice of the outlet component, the outlet component including the at least one discharge orifice is arranged directly downstream of the fixed valve seat element and permanently joined to the

fixed valve seat element, the discharge orifice of the outlet component is inclined at an angle relative to the longitudinal axis of the valve, and the outlet component includes a coating around the at least one discharge orifice, including at least in an immediate exterior of an outlet area of the at least one discharge orifice.”

In contrast to the above-recited features of amended claim 16, absolutely nothing in either Buchholz or Pontoppidan teaches or suggests that “the discharge orifice of the outlet component is inclined at an angle relative to the longitudinal axis of the valve.” For at least this reason, the combination of Buchholz or Pontoppidan fails to render obvious claim 16 and its dependent claims 19 and 20.

Independent of the above, Applicants note that Buchholz clearly does not disclose or suggest that “the outlet component including the at least one discharge orifice is arranged directly downstream of the fixed valve seat element and permanently joined to the fixed valve seat element.” In Buchholz, the perforated plate 23, made of silicon, is only braced against valve seat body 3, but clearly not permanently joined to it; instead, a protective element in the form of a protective cap 25 is situated downstream of perforated plate 23, which protective cap 25 ensures that perforated plate 23 is braced against valve seat body 3 (which has a valve seat face 13) and held there. Accordingly, the perforated plate 23 is clearly not permanently joined to valve seat body 3 which has a valve seat face 13. In addition, Pontoppidan also clearly fails to teach or suggest “the outlet component including the at least one discharge orifice is arranged directly downstream of the fixed valve seat element and permanently joined to the fixed valve seat element,” as recited in amended claim 16.

Independent of the above, the Examiner’s asserted modification to coat the perforated plate 23 is completely contradicted by the overall teachings of Buchholz and Pontoppidan, particularly when viewed in light of the ordinary skill in the art. To coat a silicon perforated plate 23 disclosed in Buchholz would be completely unusual and certain to be undesired, since under the conditions of the hot combustion chamber gases, a coating that will stick to a silicon body is not possible. Accordingly, the overall teachings of Buchholz and Pontoppidan, when viewed in light of the ordinary skill in the art, clearly leads away from the present claimed subject matter, since such a coating is totally unsuitable in the case of silicon.

For at least the foregoing reasons, claim 16 and its dependent claims 19 and 20 are not rendered obvious by the combination of Buchholz and Pontoppidan.

III. Rejection of Claims 21-25 under 35 U.S.C. § 103(a)

Claims 21-25 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Buchholz in view of Pontoppidan, and in further view of Fedorovich (Soviet Union Published Patent Application No. 775364B). Applicants respectfully submit that claims 21-25 are patentable over the combination of Buchholz, Pontoppidan and Fedorovich for the following reasons.

Claims 21-25 ultimately depend on claim 16. In addition, Fedorovich merely relates to coating, and Fedorovich clearly does not cure the deficiency of the combination of Buchholz and Pontoppidan as applied against parent claim 16. Accordingly, it is respectfully submitted that dependent claims 21-25 are patentable over the combination of Buchholz, Pontoppidan and Fedorovich.

IV. Conclusion

It is therefore respectfully submitted that all of the presently pending claims 16 and 19-25 are allowable. All issues raised by the Examiner having been addressed, an early and favorable action on the merits is earnestly solicited.

Respectfully submitted,

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